

In the claims:

1-3. (canceled)

4. (currently amended) ~~An~~ A purified antibody that binds to the hLH β core fragment and competitively inhibits the binding of the B505 antibody, produced by the hybridoma having ATCC Designation No. HB-12000, to the hLH β core fragment.

5-26. (canceled)

27. (new) A method for determining the amount of hLH β cf or hLH β cf-related molecule in a sample comprising steps of:

- (a) contacting the sample with an antibody which specifically binds to hLH β cf without cross-reacting with hLH, hLH β or hCG β cf under conditions permitting formation of a complex between the antibody and hLH β cf; and
- (b) determining the amount of complex formed, thereby determining the amount of hLH β cf or hLH β cf-related molecule in the sample.

28. (new) The method of claim 27, wherein the antibody is produced by the hybridoma cell line accorded ATCC Accession No. 12000.

29. (new) A method for determining the amount of hLH β cf or hLH β cf-related molecule in a sample comprising steps of:

- (a) contacting at least one capturing antibody selected from the group consisting of B503, B504 and B509 with a solid matrix under conditions permitting binding of the capturing antibody with the solid matrix;
 - (b) contacting the bound matrix with the sample under conditions permitting binding of the antigen present in the sample with the capturing antibody;
 - (c) separating the bound matrix and the sample;
 - (d) contacting the separated bound matrix with an antibody which specifically binds to hLH β cf without cross reacting with hLH, hLH β or hCG β cf under conditions, permitting binding of antibody and antigen in the sample; and
 - (e) determining the amount of bound antibody on the bound matrix, thereby determining the amount of hLH β cf or hLH β cf-related molecule in the sample.
30. (new) The method of claim 29, wherein the antibody is B505.
31. (new) The method of claim 29, wherein the step (c) comprises:
- (i) removing of the sample from the matrix; and
 - (ii) washing the bound matrix with an appropriate buffer.
32. (new) A method for determining the amount of hLH β cf or hLH β cf-related molecule in a sample comprising steps of:
- (a) contacting a capturing antibody which specifically binds to hLH β cf without cross-reacting with hLH, hLH β or hCG β cf with a solid matrix under conditions

- permitting binding of the capturing antibody with the solid matrix;
- (b) contacting the bound matrix with the sample under conditions permitting binding of the antigen present in the sample with the bound capturing antibody;
 - (c) separating the bound matrix and the sample;
 - (d) contacting the separated bound matrix with at least one detecting antibody selected from a group consisting of B503, B504 and B509 under conditions permitting binding of antibody and antigen in the sample; and
 - (e) determining the amount of bound antibody on the bound matrix, thereby determining the amount of hLH β cf or hLH β cf-related molecule in the sample.
33. (new) The method of claim 32, wherein the antibody which specifically binds to hLH β cf without cross-reacting with hLH, hLH β or hCG β cf is B505.
34. (new) The method of claim 32, wherein the antibody is B503.
35. (new) The method of claim 27, 29 or 32, wherein the antibody is labeled with a detectable marker.
36. (new) The method of claim 35, wherein the detectable marker is a radioactive isotope, enzyme, dye or biotin.
37. (new) The method of claim 36, wherein the radioactive isotope is I¹²⁵.

38. (new) A method of detecting ovulation in a female subject comprising:
- (a) obtaining samples from the female subject; and
 - (b) determining the amount of hLH β cf or hLH β cf - related molecule in the samples, the presence of a peak of hLH β cf indicating the occurrence of ovulation.
39. (new) The method of claim 38, wherein step (b) comprises:
- (i) contacting the sample with an antibody which specifically binds to hLH β cf without cross-reacting with hLH, hLH β or hCG β cf under conditions permitting formation of complex between the antibody and hLH β cf; and
 - (ii) determining the amount of the complex, thereby determining the amount of hLH β cf or hLH β cf-related molecule in the samples.
40. (new) The method of claim 39, wherein the antibody is labeled with a detectable marker.
41. (new) The method of claim 40, wherein the detectable marker is a radioactive isotope, enzyme, dye or biotin.
42. (new) The method of claim 41, wherein the radioactive isotope is I¹²⁵.
43. (new) A method for reducing the amount of hLH β cf or hLH β cf-related molecule in a sample comprising the steps of:
- (a) contacting the sample with an antibody which specifically binds to hLH β cf without cross-reacting with hLH, hLH β or hCG β cf under

conditions permitting formation of a complex between the antibody and hLH β cf; and

- (b) removing the complex formed, thereby reducing the amount of hLH β cf or hLH β cf-related molecule in the sample.

44. (new) The method of claim 43, wherein the removing step comprises:

- (i) contacting the complex with protein A under conditions permitting formation of a complex between protein A and an antibody; and
- (ii) removing the complex formed, thereby removing the amount of hLH β cf or hLH β cf-related molecule in the sample.

45. (new) The method of claim 44, further comprising contacting the complex with a secondary antibody under conditions permitting binding of this secondary antibody with the first antibody prior to step (i).

46. (new) The method of claim 43, wherein the antibody is linked to a solid matrix.

47. (new) The sample with reduced amount of hLH β cf or hLH β cf-related molecule produced by the method of claim 43.

48. (new) The method of claim 27, 29, 32, 38 or 43, wherein the sample is a urine sample or a blood sample.